

cardiorenal cases, with and without the hypertensive state, do not show at autopsy diffuse myocardial fibrosis. Some of these cases develop coronary sclerosis, which eventuates in more or less stenosis and sometimes thrombosis. Infarction may take place and, if the patient survives, replacement hyperplasia, or localized fibrosis, develops. The diffuse form of chronic myocarditis does not yield symptoms whereby it may be clinically diagnosed. The localized form may be suspected in cases which clinically reveal coronary disease.

The authors have concisely and interestingly presented a very pertinent topic and the writer agrees with their expressed sentiment. The writer thinks that "chronic myocarditis" should be eliminated from our clinical nomenclature, and that the term "chronic interstitial myocarditis" should be only a pathological one. If the clinician believes that complete obstruction has occurred in a coronary artery, the assumption is that infarction has occurred. In some cases without autopsy "cardiac dilatation" may be the assumed terminal pathology, and this oftentimes is the end of a process comprising work hypertrophy and subsequent muscle fatigue or degenerative changes. It is the writer's opinion that if we performed more autopsies we would find a greater incidence of coronary disease to explain myocardial pathology and, therefore, relieve somewhat the plethora of "chronic myocarditis" diagnoses.

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G. Y. RUSK, M.D. (University of California Hospital, San Francisco).—The topics discussed in the paper appear to the reviewer most timely. The use of the term "chronic myocarditis" possibly has arisen from a tendency to give anatomical explanations to purely functional disorders. It has been our experience also that the term "chronic myocarditis" has formerly been too extensively used to cover merely functional inadequacy of hypertrophy and secondary dilatation of the heart. So often has no fibrosis been demonstrable in these cases that we believe there has already been a distinct tendency on the part of the clinicians to be a little wary of this diagnosis. Where there seems to be some definite evidence for a genuine myocardial disease along the lines indicated in the paper it seems to the reviewer wise to use the term "myocardial fibrosis" which term is consistent with the not infrequent findings at autopsy. The term "myocarditis" should be restricted to those cases where the anatomical findings give evidence of a preëxisting inflammatory process. It must be admitted, however, that possibly some of the myocardial infarctions occurring principally in earlier life due to infection of the myocardium brought by way of the coronary vessels may lead to a scarring which years after may have lost all of its microscopic evidences of inflammatory origin. This suggestion is based on the occasional finding of a heart without adequate arteriosclerosis and narrowing of lumina to explain the picture but with the presence of more or less extensive myocardial fibrosis, and even cardiac aneurysm.

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GERTRUDE MOORE, M. D. (2404 Broadway, Oakland). Seldom do we find as large a group of ailments classified under one heading as is covered by the term "chronic myocarditis." The impossibility of differentiating in the living subject inflammatory processes from degenerative ones, and in turn either of them from the scars which result from such lesions, has led to this diagnosis in a large and varied group of pathologic changes in the heart. The only lesion which can with justification be called a myocarditis is one in which there is evidence of active inflammation existing at the time of the examination, with all or at least most of the tissue changes ordinarily found in this type of lesion. While fibrosis of the myocardium is in most instances the terminal stage of a myocarditis it is not in itself an inflammation and should not be so designated. The commonest etiologic factor in this condition is undoubtedly decreased coronary circulation with lack of nutrition, resulting in

destruction of muscle tissue and finally scar formation. The subject is certainly one worthy of further consideration and study in order that we may correlate our clinical and postmortem findings.

MEDICAL EDUCATION *

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THE essentials of education necessary for the training of effective physicians is a subject which first necessitates agreement among ourselves as to the functions of medicine in the world. That these functions are preventing and alleviating human suffering, is a view that is hardly likely to be contested by those who are sure that medicine is an art, nor yet by those who clamor to have it ranked among the sciences. Probably both sides will agree that a large part of the time allotted the study of medicine should be devoted to seeking explanations of normal structure and function of the human body, and to a consideration of the deviations of structure and function that we call disease.

It is probable that there will be less unanimity of opinion about the need for studying environmental influences. However, from the moment of his birth until the undertaker, disguising himself as a mortician, finally gets him, man is under the constant attack of a thousand damaging forces, so that almost the major task which confronts medicine has to do with the relief of people who find themselves out of adaptation with their environment, and the doctor's job is to readjust the patient's functions to the world around him; or, when such restoration is impossible, to arrange matters so that the maladjustment can be borne with the least possible discomfort.

If it be true that these things are the chief concern of the art of medicine, it follows that human physiology, which busies itself with the activities of the body and of the body's behavior toward the things and happenings which surround it, must supply the foundation upon which the training of the future physician is based.

The important claims of pathology are rarely understated, but pathology, after all, is merely the codified sum of the information we have accumulated about the physiology and anatomy of morbid states. All branches of clinical medicine and surgery, together with the practice of preventive medicine and of therapeutics, do no more than provide us with means calculated to restore abnormally acting physiological functions to normal. Such a conception should provide the philosophic basis for the study of medicine.

IDEALS IN MEDICAL EDUCATION

Broadly speaking, there are two ideals of education dividing the medical schools of the present day.

The one is the ideal of the trade-school, which strives to turn out its students as skilled handicraftsmen, and as little more.

The other, which we are pleased to think of as professional, seeks to give a man a wider and more comprehensive view of his profession, and

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of his duties toward the community that he is to serve. The superior prestige of the professions, as well as the many privileges accorded to professional men and women, rest on a mutual—though perhaps unexpressed—understanding that the foremost duty of those who are of the professions is to supply unselfish service to others, even though often that service can be rendered only at the cost of great personal sacrifice.

Besides the idealism of community service there also is another quality that marks the professional type of medical school—that is, the effort never to lose sight of cultural values, the endeavor to train men so that each of them will be able to contribute something of leadership to the life of his time, not alone through his skill as a physician, but through his character as a man, his soundness as a citizen, and his philosophic point of view about life in general.

There is a third view of what a medical school should be: a view brilliantly supported by Winter-nitz of Yale, who is experimenting with the plan in New Haven. As it is yet but an experiment, and an academic one at that, time must be allowed to elapse before a valid judgment can be passed upon it. The guiding principle of this idea is the conception that clinical medicine is merely applied biology; and that the practice of the art can be taught as a graduate school subject, with a pedagogical technique that differs in no way from that in vogue in other graduate departments. In this scheme the hospital is considered one of the biological laboratories, and is put on a par with all others. The obvious error in the plan, as it is outlined at present, is that it loses sight of the essential differences that arise when the materials for our study are drawn from human beings, and when we derive them from impersonal materials in the library and laboratory.

Competent craftsmen in medicine we must have, but competence and craftsmanship are not enough, and it is a question whether these schools that try to give their students an opportunity to see, and do, and hear about every detail of the innumerable manipulations that medicine and surgery employ, succeed in their aim; whether the forest is not lost sight of in counting the trees. It is even a question if young people who come from schools which hold the professional ideal do not turn out to be quite as good craftsmen. Their training is such that they get a thorough understanding of the broad-based principles on which the art of medicine is founded; they are encouraged to be independent thinkers, to develop a critical curiosity, and they learn something of how science may be applied to the unraveling of any problem, whether that problem arise in the laboratory or at the bedside.

While there is no science of medicine, there is the method of science, and there also is a vast body of knowledge about the nature of man and about his environment. The bounden duty of those who practice the art of medicine is to see that no part of this knowledge is neglected, and to see especially that the method of science does not fall into disuse. The term "the method of science" indicates merely a process which uses a thorough observation of phenomena, careful recording of such

observations, painstaking consideration of these records, and finally, practical application of such deductions as can logically be drawn from the study.

THE END OBJECTS OF A MEDICAL SCHOOL

After all, the whole problem turns on what manner of man a medical school should be trying to turn out. No matter how much the schools may differ as to the methods of doing it, with very few exceptions they would agree that at least eight-tenths of their graduates will become general practitioners. If these graduates are not prepared to meet the demands of practice, there will have been a dereliction of duty on the part of the school. Nothing can prepare them better than thorough training in this method of science.

The educational duties of the school do not cease when they have created the body of necessary practitioners: they are equally charged with keeping the ranks of the teachers filled with enthusiastic men who know not only the practice of medicine, but how best to present the subject to students; men who are possessed of the understanding heart, the heart that can grasp personalities, the strengths, the weaknesses of the pupils, and can offer the young men opportunities for study and for guidance along the lines suited to the peculiarities of each; opportunities and guidance most likely to round out information and develop character.

A third major educational task is a privilege of the schools: that is, the widening of the boundaries of knowledge about medicine, and about the biological sciences upon which the art of medicine is based, and about the reciprocal influences that medicine and society exert each on the other. And no small part of that task is the training of men, capable to investigate, and competent to carry on research. At the best, no medical school can hope to find more than one or two per cent of its students endowed with the qualities that are needed for the development of good investigators.

As a sort of by-product of these educational duties there rises another, one which is humanitarian in its essence, but which also should provide invaluable training to the student body; that is, the considerate, conscientious care of human beings in hospital wards and clinics; human beings who have trusted the tremendous issue of their lives and of their well-being to the members of the teaching staff.

THE BRITISH AND GERMAN SYSTEMS OF MEDICAL EDUCATION

It is easy to understand that these quite distinctly different tasks laid on the medical school give rise in themselves to many problems. If the problems that arise in this way were the only difficulties that existed, their solution would not be nearly so perplexing. Many of the difficulties are born from the fact that the driving energy of their ideals is derived from two distinct sources: sources philosophically and geographically, as well as temperamentally widely removed one from the other.

The old British ideal was one which dominated American medicine till the 90's of the nineteenth century. It was an ideal in which the medical

school was considered as a sort of adjunct to the hospital. Medical education was thought of as a sort of extension of the more ancient preceptor-apprentice system: a convenient and inexpensive means of giving the hospital an industrious and reasonably intelligent staff. In Britain the medical schools grew out of the preëxisting hospitals.

In Germany, on the other hand, the teaching of medicine became a university function in the days when all of the manipulations and much of the curative technique was in the hands of barbers and apothecaries, when it was considered unseemly for grave and dignified doctors to descend to manual labor in the aid of patients; days in which the authority of booklore was more potent than bedside observation. As a result of such conception, chairs of medicine developed, divorced from any close connection with hospitals. Then, in the mid-years of the nineteenth century, chemistry, physics, and a little later, pathology and the biological sciences, attained a great development in the various German universities; a development which drew many of the world's finest minds to teach and study there. It was only natural under the circumstances that between the biological sciences and the practice of medicine a pedagogical union came about, and through that union an enormous widening of our knowledge was consummated.

In this period of development of German medical teaching, few or any great minds were attracted to clinical medicine as such, and the result was that interest in, and knowledge of the biological sciences hypertrophied while the popularity of clinical medicine waned, and the personal interests of the suffering patients were seemingly lost sight of.

HOW THESE SYSTEMS AFFECTED AMERICAN EDUCATIONAL METHODS IN MEDICINE

Naturally that was but a phase in the development of mid-European medicine, yet it was a phase that reacted profoundly on medical education in our country; for many of our best young men were spending their impressionable years at the feet of German and Austrian teachers. The result was that German principles and German ideals of teaching, German forms of curricula were brought back and transplanted in the academic groves of the United States.

Unfortunately, or fortunately, as the case may be, the young fellows were unable to root out the long-established British ideal (in this country it was really Scotch), and the transplanted methods were adopted as a sort of addition to the then existing methods of teaching. As a result it was found that the philosophies underlying the two schemes were incompatible, and the group of those who believed in the older established methods, and of those who believed in the new ones, each went its own way, without much reference to the other. Two antagonistic and conflicting ideals were compartmented in the spirit of medical education, and, as may happen to the human being who segregates and attempts to suppress his soul's conflicts, a double personality was developed.

As the clinicians were, most of them, of the

British ideal, and the teachers of the premedical subjects, proponents of the Continental, this double personality expressed itself largely in antagonisms and recriminations between the so-called scientists and the men who found themselves occupied in the clinics and wards. This conflict has done more to destroy harmony in medical teaching than any other single factor. It was so bad that at one time the word "clinician" carried with it a content of contempt that would have been amusing had it not been evidence of a state of affairs that was unhealthy and damaging, not only to the harmony of the profession, but to the progress of medicine and to the respect with which medicine was held by the public.

Fortunately the conflict is being resolved, and most of the young men engaged have reached a point of view based on the conception that the prime function of medicine is to relieve the suffering of human beings, and to leave the world a healthier place to live in, a better place for future generations to inhabit, and that in order to accomplish this, the ideals of the method of science, together with the principles of physiology and of pathology must provide an informing philosophy for the student at every point of his career.

LABORATORY SCIENCES AND WARD WORK NOT ANTAGONISTIC

The conflict between laboratory sciences and the work of the wards is seen to be a purely artificial creation of intellectual arrogance. Anatomy, physiology and biochemistry, as it is possible to present them in a medical curriculum, can do no more than to teach the future physician the language of his profession. The laboratories of diagnostic methods and the x-ray laboratories are only agencies that enable one who needs to examine a patient to carry his observations farther than it is possible when he has only his unaided sight and hearing to depend upon. The realization that these methods are simply extensions of the methods of physical diagnosis, and that the service to the patient is after all the reason for the existence of both clinician and laboratory worker, brings them both on an equal plane of mutual respect and understanding.

Nevertheless many of the problems which the medical schools must face arise from this conflict of ideals, and the source of conflicts lies in peculiar difficulties presented by the fact that so much of the teaching has to be done through a study of sick people. It is because this teaching material consists so largely of psychologically endowed, emotionally unstable human beings, that it becomes impossible to apply to medical education all of the pedagogical principles that are valid when we are dealing with more academic subjects.

RESPONSIBILITIES OF MEDICAL SCHOOLS

The responsibilities of medical schools, especially those that are funded through state aid or endowment, are very great. There is no one factor more essential to the power and progress of a nation than abounding health; and a high degree of health is attainable only when the art of medicine is vigorous and growing; when it is adding new facts to the store of its knowledge and sup-

plying a succession of men competent to apply these facts for the common good—some doing their part as practitioners of both curative and preventive medicine, some as teachers and others as investigators. It is obvious that if medical schools fail in these functions there can be no adequate advance in the art of medical practice, and that the nation will suffer. Undoubtedly it is a recognition of such things that has brought about the widespread epidemic of self-examination and unbridled attempts at reform that have afflicted medical schools during the past quarter-century, and which now threatens to break out again in perhaps a more virulent form.

If we can agree that the art of medicine and the biological sciences that serve it can and should be brought to the effective service of man; that the purpose of the medical school is to graduate men, wise, capable and well trained enough to provide the service, it will be in order to inquire how the school can best fulfill that purpose, with the greatest economy of money and of the human energy of its teachers and students.

FOUR MAJOR FACTORS IN A MEDICAL SCHOOL

There are four factors that must be integrated in the medical school: the teaching staff, the student body, the curriculum, and the physical plant, which although not the most important part of the four, still is a factor that will brook neither neglect nor undue economy, for on it depend the opportunities of the student for contact with adequate physiological, anatomical, pathological, clinical and not the least, bibliographic material. No medical school can afford to be weak in any one of the four factors, but undoubtedly, to insure strength in the personnel and character of the teaching staff, is the first step toward laying the foundation for greatness. Nothing is so important as the character, competence, and point of view of the men who are there to inspire the student body with enthusiasm for learning, and with an understanding of the applied humanities. At the present time the student body of any university medical school is made up of men who have been subjected to very severe processes of selection; once at the high school, again as they entered the university, and again at the threshold of the medical school. If there is any virtue in examinations and grade points, the profession is being recruited from intellects as highly developed as any in the country. Although it is probable that the previous training of the entering students is of relatively little importance to the finished product of the school, for the reason that from now on for five of the most impressionable years of their lives, the men must live in close contact with the enthusiasts who are leaders of their chosen profession. It would be an anomaly if such had not the power to sway the youngsters and to awaken similar enthusiasms of the spirit for one or another phase of theory or practice.

FRIEDRICH MÜLLER'S VIEWS OF AMERICAN MEDICAL SCHOOLS

Friedrich Müller has recorded his impression of a recent visit made to the more renowned medical centers of America, and he deplores the tend-

ency that he discerns toward a weakening of the personal influence of individual teachers. Rightly or wrongly, he attributes this to our dislike for the didactic lecture and other forms of didactic instruction. He questions whether Osler's influence would have been so great and so enduring, had he not indulged in his daily formal demonstration clinic. There is real acumen in this criticism. Certainly no one can deny the immense value, as well as the pleasure to be derived from watching a great, or even a good mind as it formulates problems and brings the method of science to their solution. To some degree the student makes the pattern of the teacher's mind his own and carries away much more precious acquisitions than the mere information imparted by the lecture. Not that Müller would have all instruction given didactically, for he was much impressed with what he termed "the work-school" methods of American schools and clinics. I daresay that if we were asked to say what most clearly remained of the things we learned in our respective medical schools, and what things among those, retained for us the greatest value, most of us would agree in naming the ways of approaching problems and of considering them that we caught from those teachers whose personalities most impressed us while we were students. It is not the facts that they taught, but the philosophy, the shrewdness of observation and deduction, the clarity of discrimination that make us remember a Levi Lane and a William Watt Kerr as great teachers.

THE FOUR-YEAR MEDICAL CURRICULUM

In such an organization as we are considering, the study of normal physiology would be stressed during the first year, and continued with unceasing emphasis throughout the course. On the other hand the physiology of the abnormal, that is, pathology, would lightly be touched upon in the first year through weekly talks, illustrating how the normal processes of physiology, biochemistry, and anatomy become abnormal.

In the second year, after physical diagnosis of the normal has been taught and the methods learned applied to the detection of abnormal states, experimental pathology would be taken up together with bacteriology, for, after all, bacteria are the causes which originate a very large part of human pathology: and also this year seems to be the time best suited for a study of drugs as they act on normal and abnormal bodily states, and for a survey of the various therapeutic measures other than drugs.

The third year would afford the student the opportunity to concentrate on the commoner deviations from normal physiology, to learn how to interpret symptoms in terms of physiology, normal or abnormal, to study the phenomena of disease in the medical and surgical wards, and in the autopsy room, as well as in the laboratories of morbid anatomy and pathology. It is in this year that the students could well have their chance to learn history taking, mastering the ability to get an accurate record of what has happened to the patient, and to appraise the evidence justly,

while using the information gathered wisely; those are accomplishments that are too often undervalued. Nothing will repay a student more than patient effort given toward mastering the art of history taking.

By the end of the third year the student should have thoroughly grasped the idea that disease is merely the expression of the various possible deviations of physiological processes, and also that therapeutics is but a name given to the sum of all the various measures that medical men use with the hope that they may be able to restore bodily functions. By that time the young man should have acquired a clear understanding of principles, a fair amount of technical skill, and a high sense of his responsibility. If he has not, there is little hope that he will ever succeed in his chosen profession. If he has, it will be possible to allow him an increasing responsibility for the care of the patients, necessarily under close guidance, and with every opportunity to advise with, and take counsel from his seniors. So that during his fourth year the student's work becomes the application to his own patients of the methods and information he has previously acquired through cooperative study with his fellow students and teachers.

The fourth-year man should have been so prepared that the patient appeals to him as an individual out of adjustment with environment, and the readjustment of that individual as the fundamental problem of medical practice. For the man engaged in medicine, whether he be cloistered in research, or active in healing, this is "The Final and the Chief Good," as Aristotle posed it in his consideration of Ethics. All the activities of the research student, the investigator, the clinician, the therapist, serve this end, and are therefore subordinate to it. And as a part cannot be greater than the whole, so none of these can be greater than the end which they serve; therefore if these activities are to be fruitful and satisfying to those occupied with them, they must never lose sight of the final end, the greater good, which alone can justify them.

The student should have acquired a philosophy which is not made pessimistic by the knowledge that a perfect restoration may be impossible. Confronted by the incurable or the partially curable, he should be convinced that anything, however so little as it may be, a physician can do to restore function and to relieve distress, it is his duty to do, and that it is a duty well worth doing.

RECENT TRENDS IN FOURTH-YEAR MEDICAL SCHOOL WORK

The trend of policy in the more progressive schools at this time is to give the fourth-year man a greater share of responsibility for the care of patients. There is, however, no general unanimity of opinion as to how this can be done for the best advantage of both, the student and the patient.

One interesting attempt to solve this problem combines the use of a closely supervised clinical clerkship for third-year men; schools that use this method, cut lectures and other didactic teaching to the minimum. The third-year men are taught

clinical medicine and surgery entirely in the wards; the students keep very complete histories of every patient seen; these histories are scanned frequently and critically by members of the staff, and frequent consultation seminars are held on the problems that arise during the study of each patient's case. Physiologist, pathologist, anatomist and pharmacologist may join with the clinical teachers in helping the students solve these problems. During these sessions, references to literature are indicated and the student is required to incorporate summaries of important significant articles with the history.

This method of developing the mental power and the interest of third-year men is pedagogically sound. It meets the general and fairly reasonable objection often made that the third-year students should not be permitted to work much in the wards, because they are not sufficiently informed, nor likely as yet to have developed a sufficient sense of responsibility.

By the end of the third year the supervision of the clerks during that year should have remedied both these defects, and the men should be possessed of efficiency and responsibility. The study of the histories will afford the supervisors a splendid insight into each man's progress, his strengths and weaknesses, and make it possible to do away with many of the burdens of examinations. So that, by the time the men have had a year of such training, most of them are competent to enter the fourth-year and to carry on work as out-patient physicians with the minimum supervision.

The only objection to the method is that it demands a large and interested staff of supervisors; to insure such a staff does make severe demands on the exchequer of a medical school. However, the stress is somewhat eased because the presence of a well-trained fourth-year class in the dispensary brings with it some possible economies in the administration of that department.

Should the fourth-year men be put to work in the out-patient departments, or assigned to work in this or that department, or to some special clinic, or would some other plan be more profitable for their training? That again is a question.

Out-patient clinical organization has grown up with but little thoughtful consideration of the use of patients for the purpose of teaching. The convenience of the clinician has been the chief consideration; how could he give the most rapid service, within the limits of efficiency, to the greatest number? That has been the problem attacked. In a dispensary organized with such an aim and guided by such a principle, the teaching, at best, must be casual, time-wasting and fragmentary.

In the plan now under discussion the fourth-year men are assigned their work in quite a different way than has been usual heretofore. It undertakes to make a radical change in the relation of the students to their dispensary work, a change possible only because these men come from a third year of intensive clinical training that has been scrupulously supervised. Students are assigned not to this or that special clinic; they are sent to an admitting clinic where, under com-

petent supervision, they become medical advisers to certain patients. Each man or woman of the class is introduced to someone who has come seeking relief, and is told that that suffering human being is his or her patient; so long as they both are attending the dispensary, the student is to be responsible for the patient's care, and is to be the sick person's medical adviser. He is to meet his patient by appointment, he is to examine and record his findings and check them up under the direction of the visiting physician, who is also an instructor of students. This physician decides on the need for consultation, and the student accompanies the patient to the clinics indicated, and records opinions and findings of the consultant clinic on the patient's record; he also gets from the various physicians who see the patient assignments of reading pertinent to the consideration of the case, and of these he must record salient summaries in the record, and on the total records of this year, his standing as a student is rated. No matter to which of the many dispensary clinics the patient's ills take him, the student follows him there; if he goes into the hospital, there, too, the fourth-year student goes. If there is reason to suspect that economic stress, or bad home conditions are contributing to the individual's ill health, the student goes to the home, investigates and reports to his chief, so whatever means of relief are needed, the young man can learn what these are and how best they can be applied. In a way, the idea makes a return to the old apprentice system, but with an improvement: the student is apprenticed to the clinic, and he learns there that clinical medicine exists for the benefit of these suffering human beings we call patients, and that, after all, the science of chemistry, physics, and biology serve the art, while the laboratories are the shops in which medicine forges the weapons that she needs for her ceaseless combat with the forces of destruction and death.

THE FIFTH OR HOSPITAL YEAR

At the end of the four years of such training, the young aspirant to a place in the ranks of the medical profession has to spend another year in training as a resident pupil in a hospital, for all authorities are now one in the conviction that an intern year spent in a hospital of the first rank is essential, not only for the benefit of the pupil, but as well, for the protection of the community. This increased experience, this greater sense of responsibility coming after the long novitiate should guarantee that the profession is recruited in a way that insures not only technical efficiency and intellectual power, but also high character in those who are to renew its life and to maintain its traditions.

Whether these individuals turn to the practice of medicine and surgery, or whether they return to the laboratory for a life devoted to investigation, after such a training they should have acquired a philosophy of life which will bring them to consider that no man can find a more exalted calling than that which has for its aim helping human beings adjust themselves effectively and comfortably to the world in which they needs

must exist; a philosophy which will endorse the sentiment expressed by one of medicine's greatest foster sons, Louis Pasteur, when he wrote:

" . . . Nothing is more agreeable to a man who has made science his career than to increase the number of his discoveries; but his cup of joy is full when the result of his observations is put into immediate practical use. . . . "

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INDUSTRIAL DENTISTRY*

ITS TREND—INCLUDING SOME OBSERVATIONS
ON EUROPEAN PRACTICE

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INDUSTRIAL dentistry in some form or other has been in existence for more than a quarter of a century. The first dispensary of which we have knowledge was established in Rio de Janeiro in 1900 in a soap, candle and glycerin factory, where three hundred employees are now engaged. It has been in existence ever since. Free service has always been rendered there, and no deduction in wages is made for time spent in receiving dental treatment.

In the United States the introduction of this form of health service was practically coincident with the war, when the problem of efficient labor was a matter of grave concern because the majority of the employed persons were to a greater or less degree disabled. Statistics show that over 20 per cent of the drafted men were rejected for dental defects.

At the Seventh International Dental Congress, held in Philadelphia in August, 1926, interesting data were presented on this question. Dr. E. L. Pettibone of Cleveland, Ohio, reported that, in so far as the information was obtainable, ninety-one concerns in the United States and Canada maintained dental dispensaries. A resolution was passed at this Congress to the effect that "Public dental care forms the continuation of dental care in the school and must be supplied by sick funds, hospitals, factories, the Army and Navy, and the like. It forms an integral part of the public health service in all countries."

There seems to be no definite trend toward establishing dental clinics in any particular field, for they are to be found in all types of industry, as in cash register factories, department stores, and Babson's service.

AMERICAN DENTAL CLINICS

Industrial dental clinics were available in 1926 in the United States to more than 400,000 employees, and dental service was rendered by 164 dentists, 42 dental hygienists, 100 nurses, and 57 clerks. Two-thirds of all these dental dispensaries were an adjunct to or placed under the direction of the medical dispensary. This is as it should be because it is a part of a general health service, and a single administration is sufficient.

Massachusetts, New York, Pennsylvania, and

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